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June 20, 2006

Craig Melodia, Esq.
Assistant Regional Counsel
USEPA - Region 5
77 W. Jackson Blvd. (C-29A)
Chicago, IL 60604-3590

Re: Ashland/NSP Lakefront Site -- PRP Investigation Report

Dear Mr. Melodia:

As promised at our meeting in February in Chicago, on behalf of Northern States Power Company, a Wisconsin corporation, d/b/a Xcel Energy ("NSPW"), enclosed for the United States Environmental Protection Agency's ("USEPA") consideration is the above-captioned report and exhibits. I have enclosed one original hard copy and one electronic copy contained on the compact disk. By copy of this correspondence, I am also providing Mr. Hansen with a hard copy and version on CD as well as Mr. Dunn with two hard copies and a CD.

This report responds to USEPA's requests contained in its July 2004 comments on NSPW's RI/FS Work Plan Rev. 01. We request that USEPA review the report and consider specifically NSPW's conclusions and requests of the Agency contained in Section 1.0 thereof.

Lastly, as I had indicated to you, we would like the opportunity to meet with you and other appropriate Agency personnel to discuss the contents of this report and our client's requests in the context of the Site at large. I will follow up with you soon to discuss scheduling this meeting.

Very truly yours,

MICHAEL BEST & FRIEDRICH LLP

David A. Crass

DAC:tml
Enclosures
cc: Mr. Scott K. Hansen (w/encl.)
Mr. James R. Dunn (w/encl.)
Mr. David D. Donovan
Mr. Jerry C. Winslow
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ASHLAND/NSP LAKEFRONT SITE
PRP INVESTIGATION REPORT

June 20, 2006

Prepared for:

Northern States Power Company,
a Wisconsin corporation, d/b/a Xcel Energy,
a subsidiary of Xcel Energy Inc.

1.0 EXECUTIVE SUMMARY

In November of 2003, Northern States Power Company, a Wisconsin corporation, d/b/a Xcel Energy ("NSPW") entered into an Administrative Order on Consent (CERCLA Docket No. V-W-04-c-764) with the United States Environmental Protection Agency ("USEPA") requiring NSPW to develop and implement a Remedial Investigation/Feasibility Study ("RI/FS") for the Ashland/NSP Lakefront Site ("the Site"). On February 18, 2004, URS Corporation, NSPW's consultant, submitted to USEPA its RI/FS Work Plan Rev. 01 and associated planning documents. In USEPA's July 2004 comments on NSPW's RI/FS Work Plan Rev. 01[1], USEPA wrote the following:

> "Xcel Energy and WDNR are in disagreement concerning certain historical facts regarding potentially responsible parties ("PRPs")/ wood treatment and the original sources of the contaminants found on the site. EPA has not fully evaluated the data, historical information or historical investigation work with regard to the existence or non-existence of wood treatment on the property as of this date. Additional data collected pursuant to the Work Plan is expected to provide necessary information to ascertain different waste streams ... EPA requests that Xcel Energy provide a separate report to EPA on its PRP search efforts to date. In phase with this project, and through a separate track, EPA will evaluate Xcel Energy's information and findings and the current and new data set to assess other potentially responsible parties. If EPA deems it appropriate, additional PRPs will be issued notification pursuant to [CERCLA]."

This PRP Investigation Report ("Report") responds to USEPA's request. Its focus is on the Lakefront portion of the Site, generally including the area north of the bluff face to and including the near shore impacted sediments of Chequamegon Bay. (See Fig. 1) This area includes the man-made filled former lakebed portion of the Site referred to over the course of this project as Kreher Park.[2]

Since NSPW was first notified in 1994 by the Wisconsin Department of Natural Resources ("WDNR") of the contamination at the Site, NSPW has engaged in a comprehensive investigation[3] into the historical activities at the Site. This investigation includes interviews of dozens of witnesses, compilation and review of historical documentation, preservation of witness testimony via depositions and development of forensic science during the course of environmental investigations. Many conclusions derived from this investigation are already set forth in the documents, reports and review comments listed at pages 2-13 to 2-20 of the Final RI/FS Work Plan and are part of the Administrative Record. Additionally, NSPW provided an evidentiary briefing to USEPA on February 1, 2000 and followed that briefing with information

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1 URS submitted RI/FS Work Plan Rev. 02 on October 18, 2004. USEPA conditionally approved NSPW's RI/FS Work Plan Rev. 02 on December 7, 2004. URS submitted the Final RI/FS Work Plan on February 1, 2005.

2 As noted in NSPW's Final RI/FS Work Plan, reference to this portion of the Site as Kreher Park developed colloquially over the course of this project. Kreher Park consists of a swimming beach, a boat landing, an RV park and adjoining open space east of Prentice Avenue, lying to the east of the Site. To be consistent with past reports, as well as the USEPA approved Final RI/FS Work Plan, the portion of the Site to the west of Prentice Avenue, east of Ellis Avenue and north of the NSPW property is referred to in this Report as Kreher Park.

3 Although NSPW conducted a broad investigation, NSPW believes the City of Ashland and the Railroads identified herein may have further significant relevant information that would enhance the understanding of the Site's history and of the developments referred to herein. Indeed, in some instances NSPW has made reasoned assumptions about the City's or the Railroads' conduct or activities in relation to the Site based on all of the information gathered to date. This is all the more reason to request that USEPA issue those parties at minimum a comprehensive set of information requests pursuant to 42 U.S.C. § 9604(e).

provided to USEPA under cover letters dated February 10, 2000, March 31, 2000 and January 3, 2002[4]. In 2006, NSPW submitted an Environmental Forensic Investigation Final Report (Newfields 2006) and a draft Remedial Investigation Report (URS 2006). This Report compiles those conclusions with respect to sources of Site contamination other than the former manufactured gas plant ("MGP") and attaches or references much of the evidence in support.

NSPW concludes in this Report that:

- Schroeder Lumber Company owned and operated the Kreher Park portion of the Site from 1901 to 1939 and operated a sawmill, planing mill, lathmill, a wood treatment facility, oil houses, a kiln, a refuse burner and other appurtenances incidental to its wood processing facility which resulted in the actual release of hazardous substances at the Site.

- The City of Ashland currently owns a significant portion of Kreher Park where there is a release or threatened release of hazardous substances. As such, the City is the owner or operator of a vessel or facility for purposes of 42 USC § 9607(a). The City also caused or contributed to an actual release of hazardous substances at the Site by its activities and/or those of its residents and agents in (i) allowing the operation of an uncontrolled waste disposal location at the Site beginning in the 1940s; (ii) constructing in the 1950s and expanding in the 1970s the former wastewater treatment plant (WWTP) at the Site; (iii) transporting to and disposing contaminants at the Site excavated during the extension of Ellis Avenue in the mid-1980s; (iv) pumping contaminated water from the WWTP to the impacted portion of the Bay as late as 1997; and, (v) installing and maintaining surface and subsurface drainage features and transport mechanisms, such as open sewers and culverts, the result of which was to transmit contaminants from Kreher Park to the Bay.[5] This conduct renders the City liable as an "arranger" pursuant to 42 USC § 9607(a)(3). Furthermore, as described below, the City is not eligible for any of CERCLA's statutory liability exemptions.

- Canadian National Railway Company/Soo Line Railroad. Canadian National Railway Company ("Canadian National") owns a portion of the Lakefront where there is a release of hazardous substances.[6] As such, Canadian National is the owner or operator of a vessel or facility for purposes of 42 USC § 9607(a). This trackage was historically operated by not only Canadian National, but also the Minneapolis, St. Paul & Sault Ste. Marie Railway ("The Soo Line") via a lease dating to April 1, 1909. The Soo Line was eventually purchased by Canadian Pacific Railway Company, a subsidiary of Canadian Pacific Limited (collectively referred to as "Canadian Pacific"). Canadian Pacific and Canadian National are not affiliates and indeed are rival companies in the rail transit business. As such, there are potentially two railway companies -- Canadian National and Canadian Pacific -- with responsibility for historical discharges at the Site. Canadian National's predecessors' activities and The Soo Line Railroad's (i.e., Canadian Pacific) historical activities related to the operation of rail transport lines at the Site have caused releases of hazardous substances at the Site rendering the railroads liable parties pursuant to 42 USC § 9607(a). Furthermore, as described further below, the railroads are not eligible for any of CERCLA's statutory liability exemptions.

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[4] Complete copies of these submittals are available upon request.

[5] NSPW has received limited cooperation from the City of Ashland and the railroads mentioned herein in identifying their respective roles in historical activities at the Site or in producing and providing documents regarding such issues. It comes as no surprise that a private party would receive far less cooperation in attempts to obtain information from another potentially responsible party ("PRP") than would the Agency given the statutory powers (and penalties) of CERCLA. To our knowledge, the parties referred to herein have never received a comprehensive information request issued pursuant to the power of CERCLA Sec. 104(e) and such a request seems reasonable under the circumstances.

[6] In or about January of 2001, Wisconsin Central Transportation Corporation ("Wisconsin Central") merged into Canadian National via an Agreement and Plan of Merger. Wisconsin Central's trackage, now owned and controlled by parent Canadian National, included the property in Ashland and at the Lakefront. Wisconsin Central is hereinafter referred to as Canadian National.

Following review of this Report and its attachments, NSPW requests that USEPA:

- Generate a comprehensive list of information requests pursuant to its authority in 42 USC § 9604(e) to the City of Ashland, Canadian National Railroad and Soo Line/Canadian Pacific Railroad requiring those entities to provide information concerning their respective roles (or the roles of their agents, subsidiaries or predecessors) in the release or threatened release of hazardous substances at and from the Site;

- Based on the evidence presented in this report (as well as any additional information provided in response to the above information requests), determine that the Schroeder Lumber Company, the City of Ashland, Canadian National Railroad and Soo Line/ Canadian Pacific Railroad are liable parties pursuant to 42 USC § 9607(a) and issue a letter to the authorized representative or registered agent of each communicating such determination and seeking their participation in negotiations to resolve such liabilities for all response costs incurred or to be incurred not inconsistent with the National Contingency Plan ("NCP");

- Determine that the conditions exist for the exercise of USEPA's enforcement discretion pursuant to the Orphan Share Reform Policy and/or pursuant to the common law and statutory concepts of divisible harm, equitable allocation and/or mixed funding (42 USC § 9622(b)(1)) with respect to Schroeder Lumber Company's (or any other nonviable PRP's) share of responsibility at the Site.

2.0 SITE HISTORY & OVERVIEW

A complete Site and regulatory/project history is contained in Sections 2.2 and 2.3 of the USEPA approved Final RI/FS Work Plan and is incorporated herein by this reference. The Final RI/FS Work Plan also contains a discussion of the conceptual site model for the Site in Section 3.4 and the impacted sediment area in Section 4.3.3.6.2, both of which are also incorporated herein by this reference. Lastly, a conceptual site model for the Site is contained in Section 6 of the recently submitted draft Remedial Investigation Report. (URS, 2006). A timeline of events salient to this Report is as follows and forms the framework for Section 3.0 of this report.

- 1854. First settlors arrive at Ashland[7].
- 1856. Original Plat of Ashland registered at Superior Land Office.
- mid-late 1800's. Creation of the Kreher Park area begins by the filling of the original lakefront shoreline north from the bluff face. The southernmost boundary of the Kreher Park area of the Site is the railroad right of way that runs along what originally defined the Lake Superior shoreline. The filled Lakefront portion of the Site was occupied by the following series of wood processing facilities: Barber Mill (1884-1887); WR Sutherland Mill (1887-1897); Pope Mill (1897-1901); John Schroeder Lumber Company (1901-1939). Filling of the upland portion of the Kreher Park area continued after the cessation of sawmill operations during the City's ownership of the property.

[7] Looking Backward Moving Forward-Ashland, The Garland City of the Inland Seas, (Smith & Goc 1987).

- 1885-1947. NSPW's predecessors operated a MGP on NSPW property at the upper bluff. Carbureted water gas tar[8] co-product is produced and stored on-site for uses such as energy recovery and sales to third parties.
- 1887. City of Ashland is incorporated.
- 1901-1951. An open sewer is depicted on Sanborn Fire Insurance ("Sanborn") maps emptying to the Bay on the western end of the Kreher Park Area of the Site.
- 1901-1939. Schroeder Lumber, by far the largest and longest tenured of the Lakefront lumber operations, operated a sawmill, lathmill, planing mill, wood treatment structure(s), kiln, oil houses, refuse burner and tramways at the Lakefront site.
- 1941. Ashland County takes title to Kreher Park after suing Schroeder Lumber Company for nonpayment of real estate taxes.
- 1942. City of Ashland takes title to Kreher Park from the County for $1.00.
- 1940s. City of Ashland allows uncontrolled waste disposal at the Site.
- 1951-1952. City of Ashland constructs the (now former) WWTP and associated culvert transport mechanisms. Maps generated at the time of design and construction depict an area at Kreher Park as the "coal tar dump".
- 1973. City of Ashland expands the WWTP to include secondary treatment and phosphorous removal[9].
- mid-1980s. City of Ashland transports to and disposes of tar contaminated soils at the Site excavated during the northern extension of Ellis Avenue at the west end of the Site.
- 1987. State of Wisconsin sues City of Ashland to stop decades of chronic annual discharge of millions of gallons of untreated sewage and wastewaters into Lake Superior[10].

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[8] The Final RI/FS Work Plan used the term "coal tar" to generically describe MGP by-products, wood treatment residuals, creosote and other non-aqueous phase liquids (NAPL) associated with the Lakefront portion of the Site. However, the common use of the term "coal tar" in reference to black, viscous, odiferous organic liquid is frequently not applied correctly. There are four primary types of tar. These include wood tar, coal tar, carbureted water gas tar and oil gas tar. A quick summary follows:

- Wood tar is generated from the destructive distillation of wood. In simple terms, wood tar is formed when wood is cooked for a long time in an atmosphere with little to no oxygen (Brzezininski and Piotrowski 1993). When applied to uncooked wood, wood tar constituents such as terpenoid hydrocarbons and aromatics retard biological decay (Beck et al. 1993). The common use as a wood preservative was generally limited to the period before 1850 due to the costly production and intense resource utilization relative to more modern substitutes in the form of coal tar and carbureted water gas tar.
- Coal tar is generated by destructive distillation during which coal is heated under anoxic or suboxic conditions for the purpose of generating gas and coke (Morgan 1926). The tar byproduct primarily contains unsubstituted polycyclic aromatic hydrocarbons (PAHs) with two to six rings (Emsbo-Mattingly et al. 2003). Coal tars can also contain high concentrations of phenolic compounds that enhance its value as a wood preservative (Bateman 1922).
- Carbureted water gas tar is generated at a manufactured gas plant (MGP). It is primarily formed when the carburetion oil is catalytically cracked into smaller hydrocarbon gases (Bateman 1922; Morgan 1926). Like coal tar, carbureted water gas tar is primarily composed of two- to six-ring PAHs (Emsbo-Mattingly et al. 2003). While commonly used, carbureted water gas tar lacks phenolic constituents and the associated marginal benefits for wood preservation without further manipulation (Weiss 1916).
- Oil gas tar is also generated during the manufacture of gas and formed when petroleum is catalytically cracked into smaller hydrocarbons gases (Morgan, 1926). Accordingly, the oil gas tar is primarily composed of two- to six-ring PAHs (Emsbo-Mattingly et al. 2003). The differences between the oil gas and carbureted water gas processes generally exist in the plant design and type of petroleum cracked (Morgan 1926). Wood preservation studies indicated that oil gas tar was less effective than coal tar and carbureted water gas tar (Bateman 1922).

Collectively, these tars can be difficult to distinguish which, in part, explains the common use of the term "coal tar" when generally referring to any one or more of these four tar types. However, measurable chemical differences exist among these tars (Emsbo-Mattingly et al. 2003; Emsbo-Mattingly et al. 2006). In summary, "tar" is the correct term for referring to these materials generically while the specific type of tar should be used when the origin is known. In this case, given what is known about the subject MGP's operations, carbureted water gas tar is the most accurate tar reference for the Site.

[9] DRAFT Environmental Impact Statement-Ashland Harbor, U.S. Army Corps of Engineers, (October 1974) (pg. 12); See also, Environmental Assessment, City of Ashland, Wisconsin Wastewater Treatment Plant Site (Northern Environmental, 1989) (pg. 15).

[10] See, State v. City of Ashland, Ashland County Circuit Court Case No. 88-CV-9332. Lawsuit settled via stipulation requiring City to pay $10,000 civil forfeiture and undertake sewer system upgrades and improvements.

- 1989. City of Ashland documents contamination at the Site[11].
- 1997. WDNR orders the City of Ashland to cease pumping impacted water from the Site to the Bay.

While Kreher Park was created by the filling mentioned above, the noted sawmill operations occupied the Lakefront for five decades[12]. The largest and longest-tenured of these mills, the John Schroeder Lumber Company, was described as "one of the largest and best equipped mills in the North"[13]. Schroeder Lumber's operations were extensive. Its articles of incorporation stated that one of the company's business purposes was to *"...manufacture and deal in preservative chemicals, to own and operate wood preservation plants and plants for the manufacture and stillization of wood-byproducts, to explore and develop lands for gas, minerals, ores and oils, and to collect, work, use, and treat any timber and all forest and other vegetable products."*

Schroeder Lumber's Ashland plant was the company's only wood processing facility where it operated a sawmill, lath mill and planing mill. Details of the Schroeder Lumber operation, including the location of the operation's features, were obtained from interviews and depositions of eye witnesses from the time, discussions with John Schroeder's biographer and review of historical photographs and documents, newspaper accounts, aerial photographs and Sanborn maps[14]. As described in greater detail below, this information collectively indicates that an above-ground structure or structures used for creosote/tar dipping or treatment of railroad ties, telephone poles, commercial dock pilings and the like was located in the area south of the former WWTP. Additionally, oil houses were a part of Schroeder Lumber's operations and were depicted on historic Sanborn maps in the east central part of Kreher Park. Residual contamination from Schroeder Lumber's operations appears to have been transported to the Bay by the combination of the transport mechanisms installed by the City and during the City's construction activities associated with the former WWTP.

The City of Ashland's waste disposal practices in the 1800s and early 1900s consisted of open dumping of waste materials directly into the bay of Lake Superior or into the ravines that transected the lakefront area running south to north. Evidence of these historic ravines includes historic Sanborn maps, photos, witness recollections and a 1890 lithographic depiction of the Ashland Lakefront.[15]

In addition, the following quotations appear in the publication Sanitary Survey of the City of Ashland in the State of Wisconsin, by Wesley N. Warvi, UW Medical School, January 1937.

> "Ashland sewage system is very inadequate. It is simply a means of collection and disposal into the bay with no method of treatment." (pg. 54)
>
> "Those that live in some of the ravines are the most careless and dump their waste water a short distance from their homes. There is a section in the city health ordinance forbidding this practice but it is evidently not strictly enforced." (pg. 72)

See also, Looking Backward-Moving Forward, Ashland, the Garland City of the Inland Seas, (Smith & Goc 1987) (at pg. 26).

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[11] Environmental Assessment, City of Ashland, Wisconsin Wastewater Treatment Plant Site (Northern Environmental, 1989) (pg. 15).

[12] The Lake Superior Country in History and In Story, (Burnham 1930, 1974) (pg. 225-228).

[13] Cutting Across Time, Bell, 1999 (pg. 68).

[14] Sanborn maps dated 1890, 1895, 1901, 1909, 1923, 1946, and 1951 were reviewed and copies are attached at Exhibit 1.

[15] A copy of the 1890 lithograph is attached at Exhibit 2.

Following Schroeder Lumber's tenure, Ashland County acquired (in 1941) and transferred (in 1942) title to Kreher Park to the City of Ashland, which has since owned the Site[16]. During the 1940's and 50's, the City operated an uncontrolled waste disposal facility in the northwest portion of the park area. Beginning in 1951, the WWTP was constructed and operated as the City's sewage treatment facility until 1989. The City constructed a significant expansion of the facility in 1973. Construction details are observable via a series of engineering "as built" drawings.

The initial construction of the WWTP appears to have led to the City constructing a culvert transmitting wood treatment residuals from the Site - at an area labeled by the City's engineers as "Coal Tar Dump" - to the Bay inlet. This discharge point coincides with the most severely impacted near-shore sediments. Additionally, Sanborn maps depict the presence of an open sewer likely maintained by the City in the first half of the 20th century on the western end of Kreher Park trending south to north. (See Sanborn maps from 1901-1951 at Exhibit 1).

During the mid-1980's, the northern extension of Ellis Avenue was completed which created more usable land to permit establishment of a marina with full service boat slips, fuel and dock facilities and a ship store. During excavations associated with that project, the City encountered tar contaminated soils which it excavated, loaded, transported to and dumped at the Kreher Park location.

In 1988, the State of Wisconsin and an activist group, Wisconsin's Environmental Decade, filed separate lawsuits against the City of Ashland in an effort to stop decades of uncontrolled discharges of millions of gallons of untreated sewage and wastewater directly into Chequamegon Bay. These cases were later consolidated and settled via stipulation[17] requiring the City to conduct significant upgrades and improvements to its sewage and stormwater handling and treatment systems.

In 1989, during exploratory work to expand the WWTP, soil and groundwater contaminated with creosote/tar compounds were documented[18]. The City notified WDNR, subsequently closed the WWTP, and located a new treatment facility a few miles away to the southeast.[19] After closure of the WWTP, the City operated a sump pump to periodically discharge contaminated water infiltrating the structure's basement into the impacted sediments area of the Bay. WDNR ordered cessation of this discharge of hazardous substances in June of 1997.

Canadian National (and its predecessors) and Soo Line/Canadian Pacific Railroad owned and operated a rail corridor along the base of the bluff face at the Site, as well as rail sidings that serviced the Lakefront industrial area, including Schroeder Lumber. These rail lines and sidings are depicted on historic Sanborn maps and recalled by eye witnesses. Eye witness accounts describe historic railroad activities as transporting and releasing tar, oils and other hazardous substances at the Site and in the course of servicing the lumber mill operations.

Many of the Site features described in this section are depicted at Figures 2 and 3.

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[16] The City conducted a land assembly in 1986 to obtain control over all parcels along the Lakefront portion of the Site. Specifically, the City acquired parcels owned by Northland College, which the college had obtained in 1982. This land assembly is depicted on the title report and summary attached at Exhibit 3.

[17] See, State v. City of Ashland, Ashland County Circuit Court Case No. 88-CV-9332.

[18] Environmental Assessment, City of Ashland, Wisconsin Wastewater Treatment Plant Site (Northern Environmental, 1989).

[19] In the 1989 Facilities Plan Amendment for the Ashland WWTP, the cost of expanding the plant at the contaminated site is identified as a motivating factor in the decision to relocate. The document provides: "Creosote pit on site makes expansion costs with cleanup even more costly." WDNR's October 21, 1991 conditional approval confirms that: "A portion of the proposed project as submitted has been deleted. The deleted portion of the project would have been constructed in or near an area that was previously used for the disposal of waste wood from a wood preserving operation. Concerns about the handling of hazardous materials that may be encountered is the reason for the deletion."

3.0 CONTAMINANT SOURCES OTHER THAN THE MGP

The contaminant sources noted above will each be discussed in greater detail in this section of the Report[20]. However, to understand why these other contributing sources of contamination to the Site are important, one must first understand certain important facts about the MGP and the relationship of those facts to the overall mass of contaminants present at the Site.

3.1 The MGP

As part of its historic investigation, NSPW reviewed extensive records concerning the operation of the former MGP. These documents included gas production records from the Brown's Directories of Gas Statistics, Wisconsin Railroad Commission Operating Reports and annual reports of NSPW predecessor companies that operated the MGP. NSPW engaged consultants to utilize these sources of historic MGP operational data to estimate the quantity of gas and co-product tar produced by the MGP during its operation. Additionally, the same consultants were asked to estimate the volume of residual tar product in the environment based on available environmental data. Both consultants were asked to fully document their respective methodologies and conclusions. Conclusions from MGP tar production calculations were compared with the volumetric estimates of contaminant mass in the environment. Major conclusions from this investigation and assessment include the following[21]:

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[20] This Report does not fully address all other potential industrial sources of contamination (PAHs and BETX, etc.) to the Bay sediments given this port's history as an industrial shipping location. However, it bears mention that, given that this Site includes impacted sediments accumulated over decades of lakefront industrial activities, it is likely that the sediments contain impacts from upland sources and shipping activities wholly unrelated to the specific sources addressed herein. The fact that Superfund sediment sites are complex and often involve continuing impacts from sources outside the site boundaries was acknowledged in the recently issued Contaminated Sediment Remediation Guidance for Hazardous Waste Sites. (OSWER 9355.0-85 DRAFT January 2005) (at p. 2-20, 2-21). The U.S. Army Corps of Engineers note with respect to the Ashland Harbor that: "Ships and recreational boats contribute oils, greases, organic material, nutrients and heavy metals to the waters of the harbor. These materials can settle to the bottom and become mixed with and incorporated into the bottom sediment." See, DRAFT Environmental Impact Statement, Ashland Harbor Operation and Maintenance Activities, Ashland County, Wisconsin; U.S. Army Corps of Engineers, (October 1974) (pg. 12). Additionally, and as an example of the harbor's industrial activities, the publication Souvenior of Ashland County, Wisconsin (Stiles 1904) recorded the following facts:

> "The Lake Commerce of the City of Ashland alone foots (sic) up $25,000,000 annually. Here, 2,500 vessels from Montreal, Oswego, Buffalo, Cleveland and Chicago bring coal and merchandise, returning iron ore and lumber and other products of the mines and farms. In 1902, Ashland shipped 3,553,919 tons of iron ore from the three ore docks from the Chicago and Northwestern and Wisconsin Central Railway Companies. Skirting the bay front are half a dozen large sawmills, three or four coal docks, one merchandise dock, a pulp mill and one of largest plants in the United States for the manufacture of pit iron, wood alcohol and acetic acid."
>
> Further:
>
> "The seven commercial dock facilities at the Port of Ashland include three coal receiving piers and warfs, three ore shipping terminals, and one warf for handling rafted pulpwood and saw logs. ... The waterfront terminals at Ashland are served by the Chicago and Northwestern Railway, the Minneapolis, St. Paul and Sault Ste. Marie Railroad Company (Soo Line), and the Chicago, St. Paul, Minneapolis & Omaha Railway. During the 5-year period 1944-1948, inclusive, the total water-borne commerce at the port of Ashland amounted to 30,643,198 tons, consisting primarily of movements of iron ore, coal and pulp wood." The Ports of Duluth-Superior, Minnesota and Wisconsin, Two Harbors, Minnesota and Ashland, Wisconsin, U.S. Army Corps of Engineer (1949) (pg. 186-187).

[21] See, "Gas and Tar Production and Release Estimates, Former MGP-Ashland," (Dames & Moore, December 4, 1998); "Volumetric Estimates of DNAPL (Coal Tar) in the Environment and Total Tar Production From the NSP Former MGP Facility in Ashland, Wisconsin," (GTI, November 1, 2000); "Revised Estimation of Tar (DNAPL) in the Bay Area Sediments, Ashland Lakefront Site, Ashland, Wisconsin" (GTI, August 3, 2001); complete copies of which are attached at Exhibit 4.

- The former MGP operated predominantly as a manufacturer of carbureted water gas between 1885 and 1947 (62 years)[22]. It was a small facility (maximum daily capacity ranged from 90,000-250,000 cubic feet) and the data indicate it operated at less than 50% of its designed capacity based on gas production data located for 74% of its operating life.

- There is some conflicting information regarding coal gas and carbureted water gas production during the 1917 ledger entries in the records of Ashland Light, Power and Street Railway Company, a predecessor to NSPW. However, all other company records indicate carbureted water gas production only.[23]

- Between 1923 and 1947, only the carbureted water gas process was used at the facility. After 1947, the carbureted water gas process was retired in favor of liquid petroleum (propane).[24]

- During the entire time gas was manufactured, tars were produced as a normal co-product of the operation. At this time nationally, tar was a valuable product and most MGPs sold greater than 70% of the tar they produced. Tar had multiple uses -- as a sealant, as a road building material, as a wood treatment preservative and in the perfume and pharmaceutical industries, to name just a few -- and fetched a price as high as $0.15 a gallon at the turn of the century. Even at these prices, tar was still on average approximately $0.11 a gallon cheaper than refined creosote for wood treatment, making it an economically attractive alternative wood treatment/preservative compound. In fact, tar was in such demand that in the early 1900s more than 50% of all tar/creosote used in wood treatment in the United States was imported. Indeed, during this same timeframe, 70% of all water gas tars produced from MGPs was used in the wood treatment field[25]. NSPW's research indicates that the MGP in Ashland was no different, beneficially reusing its tar by selling it as a product to third-parties and burning it on-site for energy recovery. It is inconsistent with logic and historical fact to assume that the MGP's tar co-product was discharged freely to the environment without efforts to collect, store and sell. Indeed, such a conclusion would also be inconsistent with the obligation of a publicly regulated utility to prudently manage its operations.

- Calculations estimating gas and tar production rendered by Dames & Moore/ URS were reviewed by the Gas Technology Institute ("GTI"), one of the nation's premiere scientific resources on MGP operations and tar analysis. GTI's conclusions are contained in its reports of November 1, 2000 and August 3, 2001. See, Exhibit 4. GTI concludes that the MGP produced approximately

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[22] The carbureted water gas process was invented by Thaddeus Lowe in 1874. Carbureted water gas is made by passing steam through incandescent hot coke and adding carburetion oil to enrich the water gas produced. Carbureted water gas is manufactured in 3 round vessels – the generator, carburettor and superheater. (Story of Gas, p. 44-45). Carbureted water gas was amenable to the same purification process as coal gas. However, less coke, tar and ammonia production were characteristic of water gas production as compared with coal gas production. (Survey of Town Gas and By Product Production and Locations in the U.S. (1889-1950), Radian Corporation, Feb. 1985).

[23] Brown's Directories include "oil" between 1912 and 1916 and "oil and coal" between 1917 and 1920 as the gas production process. This conflicts with the company operational report information which, with the exception of a small amount of coal gas production during 1917, indicates water gas production only.

[24] See September 4, 1998 Affidavit of Vernon J. Zak (deceased), May 1999 WDNR Interview Summary Form of V. Zak and July 31, 1995 WDNR phone contact memorandum at Exhibit 5.

[25] The Story of Gas, Committee on Education of Gas Company Employees, American Gas Association (1925); Handbook on Manufactured Gas Plant Sites, Environmental Research and Technology, Inc. and Koppers Company, Inc. (1984); Brown's Directories (1936-1939); LSDP Operating Reports (1923-1948); L. Gjovik, retired, U.S. Forest Products Laboratory, Madison, Wisconsin (1999); Petroleum Engineering Handbook, Society of Petroleum Engineers (1987); Survey of Tar Waste Disposal and Locations of Town Gas Producers, Radian Corporation (Draft 1984) ; Survey of Town Gas and Biproduct Production and Locations in U.S., 1889-1950, Radian Corporation (1985); U.S. Production of Manufactured Gases: USEPA (1988).

666,100 gallons of tar/NAPL[26] during its operating life.

Of that total volume of tar co-product produced, NSPW can account for nearly one half (i.e., approximately 280,000 gallons) by considering amounts documented as being sold to third-parties (46,800 gals.)[27], burned on-site for energy recovery (11,200 gals.), removed from a tar storage structure in 1986 (est. 7,000 gals.) or estimated to be present in the environment at and beneath NSPW's property (est. 48,000 gallons in Ravine Fill aquifer) and in the Copper Falls Aquifer (est. 167,000 gallons). See, Exhibit 4.

GTI supported NSPW's prior estimates that nearly 2.0 million gallons of NAPL - GTI calculated 2.3 million gallons - are likely present in the environment, dwarfing the volume of NAPL produced by the MGP by more than three times. These calculations by themselves confirm the presence of additional sources of tar contaminants.[28] See, Exhibit 4.

- Forensic analysis also supports multiple sources of hazardous substances at the Site. NSPW engaged GTI to also analyze and compare tar-like contaminant samples obtained from distinct areas of the Site for evidence of chemical fingerprint distinction and to reach whatever scientific conclusions could be drawn from these analyses. GTI's studies began in 1999 and concluded in August 2002. GTI concluded from its studies that:[29]

  (1) Tars found on the NSPW property and originating from the MGP are distinctly different from the tars found at the Kreher Park and Bay Sediments areas of the Site, based on chemical fingerprinting;

  (2) The tars found at Kreher Park in the area of Schroeder Lumber's former operations are commingled with a substantial fraction of middle-weight petroleum distillate in a proportion that is coincident with USEPA-defined wood treatment formulations typical of the late 1800s to mid-1930s. This proportionate middle-weight petroleum distillate fraction is not present in forensic tar samples taken from atop the bluff on NSPW property. This suggests that the tar product was manipulated to result in a chemical consistent with USEPA-defined wood treatment formulations typical of the era; and

  (3) The amount of tar product residual still present in the Bay sediments alone is nearly four times the amount of tar ever produced by the MGP. When one considers that NSPW can

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[26] GTI's evaluation discussed DNAPL because the greatest fraction of free-product residual is measured in this form. However, because other fractions (light non-aqueous phase liquids-LNAPL) have been measured at the site, tar/free-product is referenced in this Report by the comprehensive term NAPL.

[27] This is a conservative analysis based upon actual documentation reviewed. National averages reported for the time suggest that approximately 70% of all tars were sold for reuse.

[28] For purposes of this calculation, GTI used a "benchmark" of any sample yielding greater than 300 mg/kg (ppm) of total PAHs as indicative of the presence of free-product. GTI selected the value of 300 ppm as representative of free-phase tar based on similar assumptions used by researchers with a joint task force of four federal agencies (USEPA, US Air Force, DOE and NASA) known as the Interagency DNAPL Consortium ("IDC"). The IDC has been working cooperatively since 1998 on challenges associated with the characterization and remediation of DNAPL compounds. GTI representatives attended an IDC event in January 2000 at a Florida facility where the value of 300 ppm was consistently used to define free-phase DNAPL at the symposium. At the Site, recovered sediment samples consisted of soils containing sheens and free-product visible on soil surfaces when cores were opened in the field. GTI showed that the majority of free-product in the environment is found in these sediments at depths of up to 10 feet.

[29] Comparative Analysis of NAPL Residues from the NSP Ashland Former MGP Site and the Ashland Lakefront Property (Kreher Park), IGT (now GTI), (March 2000 and Addenda).

account for nearly one-half of the tar produced by the MGP, as described above, the "unaccounted for" tar produced by the MGP is at most 1/6 of the volume of NAPL estimated to be present in the Bay sediments.

- In addition to the forensic analyses performed by GTI, samples collected during site investigation work conducted in 2005 were subjected to environmental forensic analysis by Newfields Environmental Forensics Practice, LLC of Rockland, Massachusetts ("Newfields"). See, Environmental Forensic Investigation at the Ashland Lakefront Site in Ashland, Wisconsin, Newfields (February 2006). Newfields environmental forensic investigation compared the hydrocarbon composition of tar residues collected in various subsurface soil samples from the Kreher Park area to sediment samples from the Bay area and various reference stations. Forensic analyses were performed on samples secured from test pits excavated near the former uncontrolled solid waste disposal area, the former "Coal Tar Dump" area and the former WWTP area. A complete description of the means and methods, analyses and results can be found in the Newfields report. In summary, Newfields concluded that there existed strong evidence in favor of the existence of historical wood preservation activities conducted at Kreher Park, including concentrations of non-MGP derived wood preserving agents such as pentachlorophenol ("PCP"), phenols, diesel range petroleum distillates and creosote. The concentration of PCP and phenols increased proportionately with tar-derived PAHs correlating with the historical practice of blending phenolic compounds with tar prior to use as wood treatment. Tar impregnated wood was also encountered during RI test pit activity in 2005 and PAH levels at Kreher Park are an order of magnitude or more elevated than PAH levels detected from samples retrieved from the area of the MGP.

Understanding the context of the historic MGP in relation to the contaminants present in the environment is important as one weighs the evidence of other contributing sources of hazardous substances to the Site. When this physical evidence is combined with the evidence presented below concerning Schroeder Lumber's historic wood treatment operations, the City of Ashland's conduct and that of the Railroads, the conclusions in Section 1.0 become self-evident.

3.2 Schroeder Lumber Company

3.2.1 Schroeder's Extensive Operations[30]

Ashland, Wisconsin was once a bustling industrial port[31]. Natural resource extraction -- including the mining and logging industries -- lead to Ashland being one of Wisconsin's most populous cities (14,000) at the turn of the 20th century. Sawmill/wood processing activities dominated the Ashland Lakeshore from 1884 until the late 1930s. The Site was used as a lumbering hub for decades by several now-defunct lumbering companies, including the most dominant -- the Schroeder Lumber Company.

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[30] Figures 4-8 represent a compilation of features shown on the Sanborn maps from 1895-1946 superimposed on an aerial photograph from 1939 where the Schroeder mill is evident.

[31] See, The Lake Superior Country in History and In Story, (Burnham 1930, 1974); Souvenior of Ashland County, Wisconsin (Stiles, 1904); Looking Backward, Moving Forward – Ashland, The Garland City of the Inland Seas (Smith & Goc 1987); The Ports of Duluth-Superior, Minnesota and Wisconsin, Two Harbors, Minnesota and Ashland, Wisconsin, U.S. Army Corps of Engineers (1949); Cutting Across Time, (Bell) (1999).

Schroeder Lumber occupied the Site from 1901[32] until almost 1940[33] and was one of the largest and best-equipped mills in the North. Schroeder Lumber harvested and processed an average of 50,000,000 board feet of timber per year and employed hundreds of people at the Ashland mill site operating 24 hours a day during season. Schroeder Lumber was already a million-dollar operation by 1901. Schroeder harvested wood from lands it owned or leased and from lumber camps established in Minnesota, Canada and the Apostle Islands and operated a shipping fleet to both raft logs to its Ashland mill and to ship finished product for sale.

Schroeder Lumber built its own railroad system on the Apostle Islands to facilitate logging and released steers and hogs on the islands to supply meat for the camps. At Ashland, Schroeder Lumber operated a sawmill, lath mill, planing mill and wood treatment facility at the Site, which served as the Company's only wood processing facility. The Company's operations were extensive and included oil houses (perhaps to store fuel to operate kiln dryers or to store distillates to combine with tar for wood treatment), a refuse burner and heated wood treatment. Schroeder Lumber would pipe steam into the Bay to combat icing. The sawmill was located at the same location of the now former WWTP, immediately adjacent to the Bay inlet.[34] (See Figures 4-8 and Sanborn maps at Tab 1).

3.2.2 Schroeder's Wood Treatment

Schroeder Lumber produced finished lumber and treated railroad ties, commercial dock pilings, roof shingles and cedar posts. Schroeder Lumber also manufactured and drove piles for commercial dock construction - piles that would have to be treated to avoid the rotting effects of water.[35] Compelling direct and circumstantial evidence indicates that Schroeder Lumber conducted extensive wood treatment activities across the Site which contributed to the contamination now detected. (Newfields, 2006). The Company's Articles of Incorporation[36] state that one of Schroeder Lumber's primary business functions was:

> *"To manufacture and deal in preservative chemicals, to own and operate wood preservation plants and plants for the manufacture and stillization of wood by-products"*
>
> And
>
> *"To...treat any lumber and all forest...products."*

Eyewitness accounts and deposition testimony describe the wood treatment operations and numerous anecdotal accounts indicate that wood treatment activities occurred. Eyewitnesses recalled that Schroeder Lumber treated railroad ties and poles in an aboveground structure located on the Kreher Park portion of the Site. The eyewitnesses testified that they saw wood treatment occurring in the same general area that engineering drawings from the 1950's label the presence of a so-called "Coal Tar Dump". See, Figure 9.

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[32] See, Exhibit 3, Trustee Deed from Wilber G. Davis, Trustee of the Pope Lumber Company, to John Schroeder Lumber Company in consideration for $30,000, dated January 10, 1901, recorded on February 28, 1901, Doc. No. X13566, Vol. 73, Pg. 23, See, Exhibit 3, See also, The Ashland News, (01/10/1901), The Ashland Daily Press, (01/10/1901) Exhibit 6.

[33] Quit Claim Deed from John Schroeder Lumber Company to Ashland County dated December 6, 1939, recorded on December 21, 1939, Doc. No. X103493, Vol. 156, Pg. 317; See also, The Ashland Daily Press, (02/26/1940) Exhibit 7.

[34] Bell, M., Cutting Across Time (1999); 1890 Lithograph; Sanborn maps; City Directories 1897-1950; Biographer Mary E. Bell; Adams, Commercial History of Wisconsin; White, A History of John Schroeder and The John Schroeder Lumber Company (1990); Burnham, The Lake Superior Country in History and in Story, (1974 Browzer Books)(#000039-43); The Ashland News, (11/04/1901); (11/14/1901); The Ashland Daily Press, (01/10/1901); (01/11/1901); (06/27/1916); (09/03/1919); (07/12/1921); (06/06/1931); Ashland County v. John Schroeder Lumber Company, Ashland County Circuit Court (1939); Alex Ledin et al v. John Schroeder Lumber Company, Ashland County Circuit Court (1915); Raff, Pioneers in the Wilderness, (1981).

[35] The Ashland Daily Press, (06/27/1916).

[36] Amendment to John Schroeder Lumber Company Articles of Incorporation, dated October 25, 1920.

Those who did not directly witness wood treatment recalled both the same type of structure with the same contents in the same general location as described by eyewitnesses and also reported seeing stacks of blackened railroad ties nearby[37]. In addition, it was anecdotally well known in Ashland that Schroeder Lumber treated wood in a pit or structure at the area now known as Kreher Park. Attached at Exhibit 8 is a witness-by-witness summary of those recollections as well as copies of deposition transcripts[38], affidavits and WDNR interview summaries that support this conclusion. Also, witness recollections are compiled and depicted at Figure 9.

Additionally, WDNR's own documentation generated throughout its investigation of the Site supports this conclusion. WDNR's April 19, 1991 document titled "Case Summary Comments for ERP Scoring: Ashland WWTP" referred to the "[d]ocumented dumping of creosote-treated wood preservatives" at the Site confirming the anecdotal references to historic wood treatment at the Lakefront. The WDNR document provides:

> "Data from geotechnical and environmental borings indicate creosote impacted wood waste layer of variable thickness at existing site. ... Prior to 1920s, site occupied by Schrader (sic) Sawmill. It manufactured RR ties and timbers for docks – treated them with creosote in creosote pit located to south of site."

On August 21, 1991, WDNR's Project Manager wrote to the City of Ashland's Water Utility Director to comment on a proposed sewer extension project in the area. WDNR wrote:

> "As you know, the proposed sewer extension is going to be constructed near or through an area that was used for the disposal of wood waste from a wood preserving operation.... It looks as though there will still be some wood waste encountered with the proposed route of the sewer. If treated wood waste, product, or contaminated soil is encountered..."

Furthermore, no less than three environmental consultants working for WDNR and the City have also concluded that such activities occurred based on the historic evidence. For example, Short Elliot Hendrickson, Inc. ("SEH"), a WDNR consultant, wrote the following:

> "SEH believes that former wood treatment activities may have occurred at the Ashland Lakefront Property, and at least a portion of the subsurface contamination may have resulted from wood treatment activities."

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[37] See, Fig. 9. The eye witness recollections are extremely consistent as to the location of Schroeder's wood treatment operations, although certain witnesses suggested that wood treatment occurred east of Prentice Avenue (as opposed to west of Prentice Avenue at the Site). NSPW believes this suggests the potential historic presence of more than one area of wood treatment by Schroeder at the Site. Given the duration and reach of Schroeder's activities, it is likely that operations may have moved across the Lakefront property. Despite the recollections of wood treatment east of Prentice Avenue, no significant environmental impacts were discovered in that area. See, Phase I Environmental Site Assessment - Former Schroeder Lumber/Kreher Park Property (MSA, October 2001)); Final Phase II ESA Work Plan - Former Schroeder Lumber/Kreher Park Property (MSA, December 2001); Phase II Environmental Site Assessment Report — Former Schroeder Lumber/Kreher Park Property (MSA, June 2002).

[38] Witnesses were deposed in three contexts. First, on October 16, 2001, certain witnesses were deposed in connection with a petition to preserve testimony in anticipation of unavailability. Second, certain witnesses were also deposed in connection with a personal injury claim filed against NSPW by a former city employee (and his wife) who worked at the former WWTP. That case was captioned *George F. Grosjean, et al. v. NSPW*, Ashland County Case No. 02-CV-150 and is no longer pending. Third, certain witnesses were deposed in connection with the pending cases captioned *St. Paul Mercury Insurance Company, et al. v. Northern States Power Company, et al.*, Hennepin County, Minnesota Case No. 03-017809 and *NSP v. Admiral Insurance Company*, Eau Claire County, Wisconsin Court Case No. 03-CV-753.

"SEH identified three potential sources of contamination at the Ashland Lakefront property: possible wood treatment activities, potential contamination from the upgradient MGP, and historic filling activities at the Site."

"A number of individuals interviewed recall creosote wood treatment operations historically occurring in the vicinity of the Site."

Comprehensive Environmental Investigation Report, (SEH May 1997), (pp. 30, 19, 18).
Remedial Action Options Feasibility Study, (SEH December 1998) (p. 4).

MSA Professional Services ("MSA") concludes from its review of aerial photographs including the 1939 aerial photograph that:

"The Schroeder Lumber Co. mill to the west is visible along with several railcars. A pit appears to be present on the Schroeder Lumber Co. property."

Phase I ESA, (MSA October 2001) (Page 7).

"The Schroeder Mill located on the property to the west of Prentice Avenue, was originally known as the Barber Mill and was built in 1884. The Schroder (sic) Mill was subsequently sold to Sutherland, then Pope, and then John Schroder Co. of Milwaukee. According to interviewees, wood treatment operations were conducted on the subject property in the 1930s."

Phase I ESA, (MSA October 2001) (Page 15).

"A coal tar pit and/or creosote wood treating operation was reportedly in operation at the Schroeder Sawmill located immediately west of the property in the 1920 or 1930s. The wood preservative used in the treatment process was reportedly obtained from a former manufactured gas plant located to the southwest of the subject property."

Phase I ESA, (MSA October 2001) (Page 16).

"A coal tar pit and/or creosote wood treating operation was reportedly in operation at the Ashland Lakefront site located immediately west of the property in the 1920 or 1930s. The extent of the groundwater contamination originating from the Ashland Lakefront site has not been determined to the east of Prentice Avenue. Railroad tank cars were reportedly used to store and/or transport the coal tar on the adjacent Schroeder Sawmill property. It is not known whether spillage may have resulted in contamination of the soil and groundwater along the railroad spurs that may have brought lumber to the site."

Phase I ESA, (MSA October 2001) (Page 23).

In 1989, Northern Environmental recounted the following:

"Prior to the 1920s, the current WWTP facility site was occupied by the Schrader (sic) Sawmill. The Sawmill was reported to

> have manufactured railroad ties and timbers for dock construction. The railroad ties were treated in a creosote pit reportedly located to the south of the present WWTP facility. It has (sic) not known whether the creosote pit was operated by the Schrader (sic) Sawmill or one of the various railroad companies in the area."

Environmental Assessment, City of Ashland, Wisconsin Wastewater Treatment Plant Site (Northern Environmental, 1989) (pg. 15).

USEPA's Hazard Ranking System ("HRS") scoring packet also refers to the historic wood treatment activities as a source of contaminants at the Site. USEPA's NPL Characteristics Data Collection Form for the Site identifies former "wood preserving/treatment" as an activity at least partly responsible for the principal contamination at the Site. See, Ashland/Northern States Power Lakefront NPL Characteristics Data Collection Form at page 4. Additionally, "Wood/ Lumber Treatment" is identified as a source of waste disposal resulting in the principal site contaminants. See Id. at pg. 6.

That the treatment of railroad ties, poles, piling for commercial docks and potentially other wood products occurred at the Schroeder Lumber operation is beyond question. This historical fact helps explain why there is present in the environment nearly four times the amount of tar/NAPL as was ever produced by the MGP – even when one ignores the evidence accounting for MGP tar being recovered, burned or sold to third-parties. The wood treatment also explains the detected presence of a middle-weight petroleum distillate in forensic tar samples secured from Kreher Park and the sediments in a proportion that is coincident with ratios USEPA uses to define wood treatment formulations from that era. Wood treatment also explains important differences detected following forensic analyses from among samples collected in test pits and sediments across the Site (Newfields, 2006) and the fact that PAHs are detected at Kreher Park at least an order of magnitude higher than PAH readings at the MGP site. (URS, 2006).

Given this disparity in volume, the numerous accounts of wood treatment, the volume of wood processed by Schroeder and the national practice of wood treatment, Schroeder likely imported (via ship or rail) tar or refined creosote to support its operations. Additionally, potential transactions for the MGP's tar product may have also occurred given that tar was sold from the MGP to other third-parties, given its value as a preservative at the turn of the century and given the proximity from producer (the MGP) to potential consumer (Schroeder Lumber). Whether Schroeder Lumber imported (explaining the additional volume) or whether Schroeder Lumber purchased tar product from the MGP for use in its wood preservation operations or both, the conclusion that a share of Site responsibility rightly rests with Schroeder Lumber is beyond dispute.

3.3 City of Ashland

3.3.1 City's Waste Disposal

As described above, the bases for the City of Ashland's liability are its status as an owner of the Site, as well as its activities that caused or contributed to releases of hazardous substances at the Site. Ashland County acquired the Kreher Park Lakefront Site via tax delinquency foreclosure in 1939 after it sued the Schroeder Lumber Company.[39] The City of Ashland then acquired the property from the County for $1.00.[40]

During the City's ownership in the 1940s and 50s, the Site was used as an uncontrolled

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[39] Ashland County v. John Schroeder Lumber Co., Ashland Co. Cir. Ct. (1939); See also, note 31, above.

[40] See Exhibit 3, Quit Claim Deed from Ashland County to City of Ashland dated March 12, 1942 recorded March 13, 1942, Doc. No. X107607, Vol. 168, Pg. 52.

waste disposal site where open and uncontrolled dumping occurred. WDNR documents refer to this area as an old landfill. Fill materials at the Site contain solid, municipal, construction and demolition and industrial waste materials unrelated to the operation of the MGP. Among others, the following witnesses recall such disposal activities:

Gordon Parent
Ray Parent
Joe Kabasa, Jr.
Ron Nye
Kenneth Veno
John Walters

As above with respect to the operations of Schroeder Lumber, attached at Exhibit 8 is a summary of those witnesses' recollections as well as copies of affidavits and deposition transcripts that support this conclusion. Exploration test pits conducted as part of the RI activities in 2005 detected the presence of miscellaneous debris and fill material in this area. Figure 10 identifies the test pit locations excavated during the 2005 RI.

3.3.2 City Constructs Conduits to the Bay

A series of exploration test pits conducted as part of the RI activities in 2005 identified a network of subsurface sewers or drainpipes installed by the City which likely served as transport mechanisms for contaminants from upland areas to the impacted Bay sediments. A complete report of the results of this test pit investigation is presented in the RI Report. (URS, 2006). Environmental forensic samples were collected from these pipes, analyzed and reported in the forensic report cited above. (Newfields 2006).

In approximately 1951, the City built the (now former) wastewater treatment plant ("WWTP") along the filled Lakeshore. This construction occurred not long after the cessation of wood treatment activities at the Schroeder Lumber Company property. Given the condition of the Lakefront as recalled by several witnesses (See Exhibit 8), it should not be surprising that the City encountered impacted soils and groundwater from wood treatment residuals during its construction project. The City has provided little evidence concerning the construction project, however, for the reasons discussed below, it is clear that the significant land disturbing activities during the construction of the WWTP structure resulted releases to the now impacted sediments given that wood treatment residuals were exposed during that construction project. See, § 4.3.3.6.2 RI/FS Work Plan and § 6.0 of the RI Report (URS, 2006); See also, October 8, 2003 deposition of Mr. Fred Kovach (pgs. 9-10) at Exhibit 8.

The City retained Greeley & Hanson Engineers of Chicago to design and construct the WWTP, both for the original construction in 1951-1952 and the plant expansion in 1973. Record drawings from 1953 show the existence of an area labeled at the time by Greeley & Hanson as a "Coal Tar Dump". This area labeled as "Coal Tar Dump" is in the same general area as the eyewitnesses recalled the Schroeder Lumber wood treatment structure. See, Figure 9 and Exhibit 8. The location of the "Coal Tar Dump" was also investigated and confirmed by the 2005 test pit investigation and associated forensic sampling.

The drawings also depict a corrugated steel culvert installed from the "Coal Tar Dump" to an open ditch conduit to the Bay. This corrugated culvert is shown extending from the north end of the "Coal Tar Dump" area below Pulp Hoist Road (now Marina Drive) to an open ditch, which in turn leads to the west of the Bay and outfalls where the highest sediment contaminant levels have been measured. See, § 3.4.1, RI/FS Work Plan. Witnesses Gordon and Ray Parent described this very feature. Moreover, the test pit investigation conducted in 2005 encountered a steel culvert north of Marina Road. This conduit was likely installed by the City and designed to drain the area of former wood treatment residuals -- or "Coal Tar Dump" as the City's engineers labeled it -- directly to the Bay so as to accommodate construction.

The construction specification issued for the original WWTP construction provides as follows:

> "Earth excavation, in open cut, shall be made to the widths and depths necessary for construction, according to the Plan, all structures included in this Contract and includes the excavation of any other material defined as earth which, in the opinion of the Engineer, is desirable to be excavated for any purpose pertinent to the construction of the work. ... Surplus excavated material, in excess of that required for backfilling around structures and in trenches for constructing fills and embankments as shown on the Plan, shall be transported and disposed of as directed by the Engineer within a distance of 1,000 feet from the point of excavation, or as approved by the Engineer."

Specifications, Workmanship and Materials, Sec. 1 Earth Excavation, W-1.02 and W-1.06.

We are not aware of any authorized disposal location within 1,000 feet of the WWTP construction site other than the historic waste disposal location at Kreher Park investigated as part of the 2005 RI test pit investigation. The January 28, 1954 final report issued by Greeley & Hanson titled, Sewers and Sewage Treatment Work, City of Ashland, Wisconsin does not provide any mention of the excavation of wood waste or other wood treatment residual material encountered during the construction project.

Additionally, a former open sewer that crossed Kreher Park in the western portion of the Site is shown on historic Sanborn maps from 1901-1951 and represents a possible further conduit of upland contaminants to the Bay. A series of subterranean clay pipes or historical sewers encountered during the 2005 test pit investigation appeared to have drained upland areas to this open sewer maintained by the City. The combination of the former open sewer -- likely installed and maintained by the City as a waste disposal mechanism -- the corrugated steel culvert (a transport mechanism) draining the "Coal Tar Dump" area to the Bay and installed during the construction of the WWTP -- evidence the City's participation in the threatened or actual release of hazardous substances to the Bay.

3.3.3 City Disposes of Tar at the Site

In addition to the above described matters, in the mid-1980s the City was involved in the disposal of tar at the Site. Attached at Tab M of Exhibit 8 are the deposition transcripts and associated affidavits secured from William Peter ("Pete") Carrington. Mr. Carrington was a project engineer for Wilhem Engineering and worked on the City of Ashland's project extending Ellis Avenue north in the mid-1980s. Mr. Carrington recalls that during the excavation, a large area of thick, heavy creosote-like material was encountered at the bottom of the hill near the railroad tracks. Mr. Carrington recalls that this material was loaded by the City into city dump trucks, trucked south on Ellis Avenue to U.S. Highway 2, east on U.S. Highway 2 to Prentice Avenue, then north on Prentice Avenue to be dumped at the Site in an area just to the south of the former wastewater treatment plant. See also, Figure 9. These facts evidence that the City not only arranged for the disposal of hazardous substances at the Site (42 U.S. § 9607(a)(3)), but also transported and selected the Site for disposal. 42 USC § 9607(a)(4).

3.3.4 City Direct Discharges Contaminants to the Bay

Additionally, the City of Ashland was engaged in the pumping of contaminated water – that collected in the basement of the former WWTP – directly to Chequamegon Bay without treatment. In a June 1997 memorandum, WDNR staff documented a meeting with a former City

Administrator wherein the City official explained "that the old plant continues to discharge water to the lake and has since its decommissioning. The water infiltrates into the basement and collects in a sump and is then pumped into the lake. All indications are that the water would be contaminated as the groundwater surrounding the building has been tested and confirmed contaminated with VOCs and PAHs." The memorandum continued "This is a hot issue. I have forwarded an enforcement form through the channels but this should have waters program involvement." The Department collected a sample of the water and it showed elevated levels of naphthalene and other PAH and VOC compounds. In a June 23, 1997 letter, the Department directed the City to cease its uncontrolled discharge of contaminated water. Documentation concerning this unauthorized discharge is attached at Exhibit 9.

The above-described activities render the City of Ashland a "covered person" for purposes of 42 USC § 9607(a). Moreover, the City can cite no statutory exemption to provide it relief from this liability. For example, the allegations concerning the City's activities as an "arranger" suggest that the volume of waste was more than 110 gallons of liquid material and more than 200 pounds of solid material, making it ineligible for the de micromis exemption in 42 USC § 9607(o). Although its residents may attempt to assert the municipal solid waste exemption contained in 42 USC § 9607(p), the City is not eligible for that exemption. Likewise, the contiguous properties exemption in 42 USC § 9607(q) provides the City with no relief. These exemptions are unavailable because the plain language of the CERCLA statute requires that the exempt party must not have "cause[d], contribute[d] or consent[ed] to the release or threatened release." A party asserting the contiguous property exemption must also have taken reasonable steps to stop the release and minimize environmental harm on its property as a result of the release and must have conducted all appropriate inquiry at the time of property acquisition evidencing that it lacked knowledge that its property was or could be contaminated by any contiguous parcel release. The facts asserted above reveal that not only did the City fail in 1942 (and later in 1986 during its land assembly at Kreher Park) to undertake all appropriate inquiry as now defined (See, 40 C.F.R. Part 312), but the City (i) constructed conduits to exacerbate the discharge and indeed provide a pathway for exposure to the Bay; (ii) knowingly discharged contaminated groundwater from the Site directly into the Bay as late as 1997; and, (iii) actively disposed of tar materials at the Site in conjunction with its 1986 roadway extension project. In sum, the recently enacted exemptions pursuant to the Brownfield Reform and Small Business Liability Protection Act (HR 2869) provide no relief to the City for its status as a liable party pursuant to 42 USC § 9607(a).

3.4 Canadian National Railroad & The Soo Line (n.k.a Canadian Pacific)

As indicated earlier, both Canadian National and The Soo Line/Canadian Pacific either own property at the Site or operated rail lines that serviced the Lakefront's industrial activities, or both. The railroads' liability associated with the Site is based on their respective status as owners of the Site and/or as "arrangers" that contributed to the release of hazardous substances. Canadian National owns a portion of the Site. See, Exhibit 3. The trackage over this property owned by Canadian National included sidings and spurs that serviced the Schroeder Lumber operation. See, Exhibits 1 and 11 and Figures 4-8. This trackage was historically operated not only by Canadian National's predecessors but also by The Soo Line, now owned by Canadian Pacific. The Soo Line entered into a lease for this trackage in 1909.

The following individuals recall witnessing the presence of railcars on the Canadian National line and siding that serviced the Schroeder Lumber Company and had some role in the off-loading or transport of tar materials.[41]

Fred Kovach	Ray Parent	Thomas Nelson
Joseph Kabasa, Jr.	John Walters	Mary Kabasa

See Exhibit 8 for a summary of those witness recollections. Several of these witnesses recalled that the railroads dumped oil, tars or tar-like materials and other hazardous substances across the shoreline area where the tracks ran. The witnesses also recalled the presence of a rail tank car periodically parked near a housing/manifold system to support product delivery lines at the bluff face. Witnesses recall observing tar present within and at times overflowing this tank car. It is unknown whether this tank car was utilized to transfer tar from the MGP off-site to third-party customers or simply as a means of transferring tar from the MGP to Schroeder Lumber's wood treatment facility.

Other witnesses recall the railroad companies utilizing the Lakefront portion of the Site as a dump area during the City's operation of an open dump at the Site. See, Exhibit 8.

There is also some evidence to suggest that the railroads may have been in an enterprise with Schroeder Lumber for purposes of Schroeder's wood treating vessel. It is well documented that Schroeder Lumber manufactured treated railroad ties (see above). According to The American Lumber Industry (1923):[42]

> "In this country, wood preservation has made rapid strides since 1900. The real foundation of the industry was laid in 1873, with the installation of a plant at Pascagoula, Mississippi on the Louisville and Nashville railway. In 1904, there were 33 plants in operation in the United States, with a capacity of 250,000,000 board feet of treated material. The railroads are naturally the greatest users of timber and wooded materials to be affected by this industry, and at the present time all of our great American railway systems have one or more timber-treating plants, either owned by the railroads or operating in connection with them, largely for the treatment of cross ties."

The percentage of creosote treated crossties on U.S. rail lines grew rapidly during the early 1900s. Wood Preservation, Hunt & Garratt (1939). In 1900, only 3.3% of U.S. rail lines contained treated railroad ties. By 1920, more than 43% of rail lines sported treated ties. This increasing trend continued such that by the 1960s nearly all railroad ties were manufactured from treated wood. This explosion in the percentage of railroad ties being treated coincided with the time of Schroeder Lumber's operations.

A conclusion that the railroads were participating in a venture with Schroeder Lumber to generate treated railroad ties for railroad use is more than reasonable when one considers the recollections of witnesses, the economies of the day, the growth in the use of treated ties

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[41] NSPW acknowledges that its historic investigation was focused to a greater degree on the activities of Schroeder Lumber and the City as causing or contributing to the release of hazardous substances at the Site. Be that as it may, there is some evidence of the railroads' participation in the transport of tar product and/or wood treatment materials in addition to their status as owners or operators of a portion of the Site. Indeed, we believe the lack of information concerning the railroads' participation at the Site is justification for issuing, rather than a reason to not issue, a request for information pursuant to sec. 104(e) of CERCLA. We request the agency do so and then parties will have an opportunity to evaluate the railroads' information from there.

[42] See, The American Lumber Industry, Embracing the Principal Features of the Resources, Production, Distribution, and Utilization of Lumber in the United States, by Nelson Courtlandt Brown, Professor of Forest Utilization, the New York State College of Forestry, Syracuse University; formerly United States Trade Commissioner to Europe for the National Lumber Manufacturer's Association and the United States Department of Commerce (1923).

coincident with Schroeder Lumber's operations, and the relative proximity of tar raw material, rail lines and treated railroad ties. This is additional support for NSPW's request that USEPA issue these parties a request for information pursuant to the statute.

4.0 SUPPORTING TECHNICAL DATA

Site investigation technical data (URS, 2006) corresponds with the historical information provided in this Report. Although already mentioned above, four site conditions merit further technical elaboration:

- GTI's calculation of 2.3 million gallons of free-product tar in the sediments. Other than the sediments, the only other locations where significant amounts of free-product have been found -- albeit at significantly lower volumes -- are in the Copper Falls aquifer, the filled former ravine area south of St. Claire Street, the former "seep" area at the bluff face and the immediate area near monitoring well TW-11 north of the WWTP. The 2005 test pit investigations identified a pipe parallel to the bluff face composed of the same approximate material and vintage as the clay tile installed at the base of the former ravine which was unearthed during prior investigations. The pipe encountered along the bluff face was aligned between the former seep area and the former open sewer. Both the clay tile in the buried ravine and the lateral pipe along the bluff face were installed by the City as part of the same network of sewers before the ravine was backfilled. Although this pipe network may have resulted in a discharge of free-product to the bay via the open sewer, the findings also indicate the discharge was not limited to the MGP alone. It is likely the free product was discharged via this pipe network from other industrial operations as well (i.e., Schroeder Lumber). In addition, the 2005 test pit investigation identified a culvert feature installed associated with the WWTP construction. See, Figure 10. This drainage feature provided an additional potential transport mechanism of wood treatment residuals to the bay sediments. These findings confirm there are several sources of free-product in the sediments, accounting for the large free-product volume measured in the sediments.

- The distribution of free-product levels found at the site. The distribution of free-product levels found in the sediments shows that the highest levels of contaminants mimic the shape of the shoreline. Such a distribution pattern would not be expected if the source of the sediment impacts was limited to a point source such as the open sewer. One would expect to see a fan-shaped contaminant distribution pattern extending out from such a point source. This distribution pattern could not have resulted from natural littoral or wave action effects because of the protected nature of the inlet. This contaminant distribution pattern is more consistent with the historical discharge of industrial sources at the lakeshore during the tenure of Schroeder Lumber and later during the construction (excavation/grading/filling) to accommodate the WWTP.

- The relative absence of middle-weight petroleum distillates in samples of free-product collected from the former MGP site. Although the forensic analyses performed by both WDNR and NSPW on samples of material from the MGP, Kreher Park and the sediments, conclude that the tars likely originated from a water gas origin (the gas production technology utilized at the MGP), samples from the MGP do not contain a middle-weight petroleum distillate in a proportion coincident with wood treatment specifications as is the case at Kreher Park (the site of Schroeder Lumber's former operations). This issue is addressed above in Section 3.1 of this Report. This middle-weight petroleum distillate material may have originated from fuel oils used and disposed at Kreher Park at off-loading and fuel-burning facilities, or may have been added as part of the wood treatment operations. It is not found at the top of the bluff in the same relative proportions found at Kreher Park and may account for much of the additional volume of product found at the Lakeshore and in the sediments. Moreover, the discovery of PCP and phenols in samples from the "Coal Tar Dump" area strongly suggest the

presence of historic wood treatment. (Newfields, 2006).

- The presence of significantly greater PAH contamination near the former wood treatment area. Section 5.0 of the RI report (URS, 2006) described the presence of PAH contamination at the Kreher Park area that is an order of magnitude or more higher than PAH levels detected from samples retrieved from the MGP area. This data confirms the presence of a significant additional source of contamination coincident with Schroeder Lumber's historical wood treatment and industrial operations along the lakefront.

5.0 CONCLUSION

This report, when coupled with the historical and technical evidence generated to date concerning the origin and sources of contaminants across the Site, indicates that it is an unsustainable position to assert that all of the contaminants at the Site resulted from the historic operations of the MGP. Rather, the activities of others (and other sources) have significantly contributed to the volume of contaminants at the Site, as well as exacerbated pre-existing discharges by transporting those hazardous substances to the sediments of Chequamegon Bay. The MGP could not have produced all of the impacts detected in the environment even if one assumes all of the tar product the MGP ever generated was dumped directly into the Bay. The MGP was a small facility that operated on average at less than 50% of its design capacity and that generated a total volume of tar product that is only approximately 25% of the residual volume of NAPL estimated to be present in the Bay sediments alone.

The significant operations of Schroeder Lumber Company and the Railroads along the Lakeshore, coupled with the manipulation of the Site through construction projects undertaken by the City, cannot be overlooked. NSPW owes a duty of prudency to its ratepayers when confronted with potential liabilities to which it must respond. That duty of prudency requires that NSPW not assume for its ratepayers the liabilities and responsibilities of others. As such, NSPW urges USEPA to review the information presented herein and to arrive at the conclusions set forth below:

- Schroeder Lumber Company owned and operated the Kreher Park portion of the Site from 1901 to 1939 and operated a wood treatment facility, oil houses, a kiln, a refuse burner and other appurtenances incidental to its wood processing facility which resulted in the actual release of hazardous substances at the Site.

- The City of Ashland currently owns a significant portion of Kreher Park where there is a release or threatened release of hazardous substances. As such, the City is the owner or operator of a vessel or facility for purposes of 42 USC § 9607(a). The City also caused or contributed to an actual release of hazardous substances at the Site by its activities and/or those of its residents and agents in (i) allowing the operation of an uncontrolled waste disposal location at the Site beginning in the 1940s; (ii) constructing in the 1950s and expanding in the 1970s the former wastewater treatment plant (WWTP) at the Site; (iii) transporting to and disposing at the Site contaminants excavated during the extension of Ellis Avenue in the mid-1980s; (iv) pumping PAH and VOC contaminated water from the WWTP to the impacted portion of the Bay as late as 1997; and, (v) installing and maintaining surface and subsurface drainage features and transport mechanisms, such as open sewers and culverts, the result of which was to transmit contaminants from Kreher Park to the Bay. This conduct renders the City liable as an "arranger" pursuant to 42 USC § 9607(a)(3). Furthermore, the City is not eligible for any of CERCLA's statutory liability exemptions.

- Canadian National Railway Company and the Soo Line Railroad (n.k.a. Canadian Pacific). Canadian National owns a portion of the Lakefront where there is a release of hazardous substances. As such, Canadian National is the owner or operator of a vessel

or facility for purposes of 42 USC § 9607(a). This trackage was historically operated by not only Wisconsin Central (n.k.a. Canadian National), but also The Soo Line (n.k.a Canadian Pacific) via a lease dating to April 1, 1909. The Soo Line was eventually purchased by Canadian Pacific. Canadian Pacific and Canadian National are not affiliates and indeed are rival companies in the rail transit business. As such, there are potentially two railway companies, Canadian National and Canadian Pacific, with responsibility for historic discharges at the Site. Canadian National's predecessors' activities and The Soo Line Railroad's (i.e., Canadian Pacific) historic activities related to the operation of rail transport lines at the Site caused releases of hazardous substances at the Site rendering the railroads a party liable pursuant to 42 USC § 9607(a). Furthermore, the railroads are not eligible for any of CERCLA's statutory liability exemptions.

Following review of this Report and its attachments, NSPW requests that USEPA:

- Generate a comprehensive list of information requests[43] pursuant to its authority in 42 USC § 9604(e) to the City of Ashland, Canadian National and Soo Line/Canadian Pacific Railroads requiring those entities to provide information concerning their role in the release or threatened release of hazardous substances at and from the Site;

- Determine that the Schroeder Lumber Company, the City of Ashland, Canadian National and Soo Line/Canadian Pacific are liable parties pursuant to 42 USC § 9607(a) and issue a letter to the authorized representative or registered agent of each communicating such determination and seeking their participation in negotiations to resolve such liabilities for all response costs incurred or to be incurred not inconsistent with the National Contingency Plan ("NCP");

- To the extent any or all of the above parties are unable to respond to their liability due to their nonexistence or financial condition, exercise enforcement discretion pursuant to USEPA's Orphan Share Reform policy in its future negotiations with NSPW;

- Determine that the conditions exist for the exercise of USEPA's enforcement discretion pursuant to the Orphan Share Reform Policy and/or pursuant to the common law and statutory concepts of divisible harm, equitable allocation and/or mixed funding (42 USC § 9622(b)(1)).

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[43] As NSPW has previously offered to WDNR, NSPW would, if requested, suggest a list of information requests for USEPA's consideration given NSPW's familiarity with the investigations conducted to date.